CS 743 – Adv. Topics in Computer Security Class Leader: Logan Kostick

Another Flip in the Wall of Rowhammer Defenses

Deadline: March 5; 2019, 11:59 PM

1 Opcode Flipping

1. (13 points) Provided is a binary called `simple_prog`, the goal is identify where single bit flips of the opcode can cause a change in logic such that simple checks are ignored or changed. Please identify two locations in the code where an opcode flip would allow an attacker to bypass a check. Give the reasoning why these flips in the logic give "elevated" access.
   `Note: The binary was built on a 64-bit Ubuntu machine (the binary is x86-64).`

2 ECC DRAM

1. (7 points) Research what is ECC memory and Hamming code. Please develop the data and parity bit boolean equations for storing 8 bits of data that provides single bit error correction and double bit error detection.

Please do not hesitate to contact me at lkostic1@jhu.edu with questions.